

Hanks (H.T.)

Compliments of the Author.

Secondary Hemorrhage After Ovariotomy.

Can We Prevent It?

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RULES TO BE FOLLOWED TO PREVENT SECONDARY HEMORRHAGE FROM THE PEDICLE AFTER OVARIOTOMY.

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FOURTEEN years ago, when I did my first ovariotomy, like most others who commenced abdominal work at that period I greatly feared lest my ligature around the pedicle would slip, hemorrhage ensue, and death result. We younger surgeons at that time were justified in this excessive anxiety, since the elder ovariotomists—Peaslee, Sims, Emmet, Noeggerath, and Thomas—whom we had watched, and of whom we had learned nearly all we knew of this work, never failed to mention and emphasize the imminent danger of secondary hemorrhage when a badly tied ligature had been placed around the pedicle. For this reason many a pedicle was fastened to the abdominal wound; and I remember with my first case I transfixated the small pedicle and tied the ligature with the greatest care, and then sewed this stump into the wound. I had seen Thomas treat a small pedicle in a similar manner only a few days before, and his patient did well, and I had no better teacher to copy. My patient did well also, and I have never lost sight of her; and about three years ago, she gave birth to a healthy child with no untoward symptoms which might be due to the attachment of this stump to the abdominal wall.

I refer to this case and to this matter of history, not to advocate any such method in treating the pedicle to-day, but

to prove that *formerly* the best ovariotomists feared secondary hemorrhage, and they feared it because they occasionally had to meet such cases then. I write this short paper because, even to-day, good surgeons occasionally have hemorrhage after ovariotomy. I myself have had two cases. One patient died; the other lived, but the abdomen had to be reopened and the pedicle re-tied (it had split below the entrance of the transfixing needle), and a weak solution (two and one-half per cent.) of chloride of sodium transfused. This was done by my associate in the Woman's Hospital, Dr. Henry C. Coe.

Three years earlier I had seen two cases of secondary hemorrhage in the practice of a friend, and in one of these I reopened the abdomen, re-tied the pedicle, transfused the saline solution, and saved the patient. I have known two fatal cases of secondary hemorrhage in the practice of another surgeon, now dead, who was an excellent operator and a most careful man. I have known of no less than ten deaths from this accident within the last five or six years.

Granted, then, that it is possible for any of us to have such an accident, we may well question if there are any rules to follow by which we may reduce the number of such fatal accidents to the minimum. I believe that there are such rules. And I wish to mention very briefly a few of the more important for the especial benefit of young operators, who may have judged that there is but one way in which to tie a pedicle.

When the pedicle is wide and flat we should not follow the same routine method which is practicable for a small round pedicle. But after the fluid has been evacuated, the loose sac should fall over the wound to one side; the pedicle, near the uterus, should then be grasped with the thumb and index finger of the hand most convenient, and the *artery* should be *located*. It can be done in many cases quickly, and in all cases with more or less certainty in *two minutes*. After locating the larger artery, cut down upon it with the scalpel as we were taught as students, and tie it thoroughly. If time is an element which has to be considered *especially*, then,

after locating the artery, pass a round-pointed, curved or bluntly-curved needle down on one side and back on the opposite side. Then tie thoroughly. Do the same with any vessel which you can feel pulsating. Whenever we are in doubt about a pedicle, it is better to pass this round-pointed, full-curved needle in and out several times, tying each time the needle comes out; otherwise *quilt* the broad pedicle in and out with the needle, and suture so that under no circumstances can the silk slip. Possibly after ligating the arteries the pedicle can be safely surrounded with a strong ligature, drawn tightly. But in any case only a small surface for granulation should be left, in order to avoid the possibility of all accidental intestinal adhesions.

In smaller pedicles try and discover the artery before transfixing, and then pass the needle to one side of it and tie thoroughly. One or two additional small catgut ligatures introduced with the curved round-pointed needle will always insure safety. In small pedicles *be sure not to pierce* the artery or split the pedicle by too much traction before tightening the ligature. Drop the small tumors or diseased tubes back after tying, and examine carefully the opposite side, and thoroughly enucleate the diseased tubes and ovary on this side; then tie. Remove diseased organs on this last side *first*. By so doing all danger of pushing off the ligature which is first applied is avoided. After tying, drop the stump back and watch for bleeding-points for fully one minute. Avoid using too much traction on the sac when tying.

In the removal of diseased tubes and ovaries, if they are displaced and imbedded in old exudations, there will be only small arteries to deal with, and almost any well-tied ligature will hold. If these organs, however, are non-adherent, then the arteries can always be avoided, and the usual ligature will hold when well applied.

I do not advocate any particular brand of silk or catgut. Any strong, absolutely *aseptic* silk is sufficient. If catgut is used it, too, must be as absolutely aseptic. In using large-

sized catgut ligature, your assistant, with smooth-jawed forceps, must hold quite securely the catgut after you have made and tightened the first turn of the knot, holding this until the second turn of the knot is made and tightened. And with large catgut we must reverse the process adopted in tying silk, and make the first part of a catgut knot with one turn and the second part of the knot with *two turns*.

To recapitulate:

1. Locate the arteries in a broad pedicle, if possible, and ligature them separately before tying the pedicle. Quilt pedicle if necessary. Use round-pointed, full curved needles and No. 2 catgut.
2. In smaller pedicles locate the artery and transfix to one side, and avoid splitting the pedicle or the artery, or using too much traction while tying. Examine the stump after dropping it.
3. Enucleate both sides before removing diseased tubes or small ovarian cysts and abscesses.
4. In using catgut tie it in the manner which is almost peculiar to catgut.

